

E. C. Case Univ. of Mich.
Ann Arbor, Mich.

SIGMA XI QUARTERLY

Vol. VI

SEPTEMBER, 1918

No. 3



In Memoriam

Henry Shaler Williams

1847-1918

OFFICERS OF SIGMA XI

President.....	JULIUS STIEGLITZ
	University of Chicago, Chicago, Illinois
Secretary.....	HENRY B. WARD
	University of Illinois, Urbana, Illinois
Treasurer.....	GEORGE B. PEGRAM
	Columbia University, New York City

EXECUTIVE COMMITTEE

CARL H. EIGENMANN.....	Indiana University, Bloomington, Ind.
	<i>Term expires January, 1919</i>
CLARENCE E. MCCLUNG.....	University of Pennsylvania, Philadelphia, Pa.
	<i>Term expires January, 1920</i>
F. E. KESTER.....	University of Kansas, Lawrence, Kansas
	<i>Term expires January, 1921</i>
F. K. RICHTMYER.....	Cornell University, Ithaca, N. Y.
	<i>Term expires January, 1922</i>
EDWARD ELLERY.....	Union College, Schenectady, N. Y.
	<i>Term expires January, 1923</i>

Published by the Society of the Sigma Xi

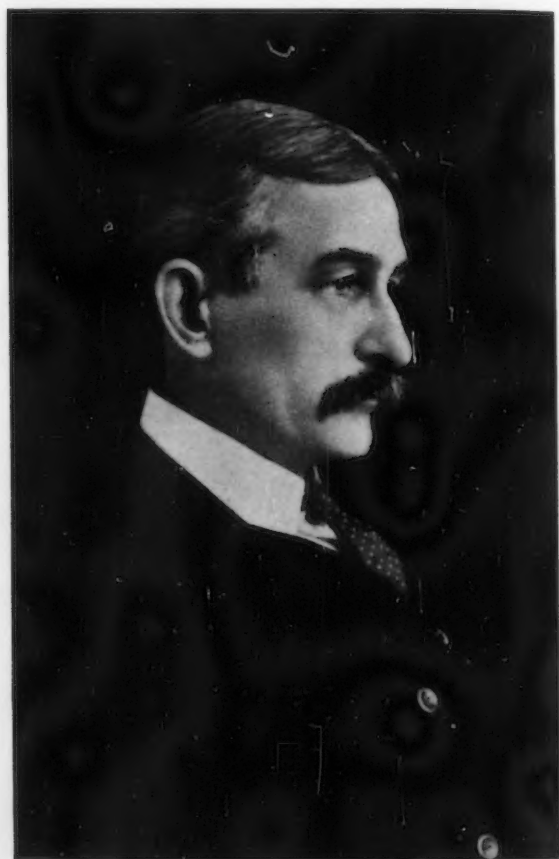
ANNUAL SUBSCRIPTION 50 CENTS SINGLE NUMBER 15 CENTS

Changes of address should be communicated only to chapter secretaries
Subscriptions and manuscripts should be sent to the general secretary, Henry B. Ward, Urbana, Illinois

Entered as second-class matter July 21, 1912, at the postoffice at Menasha, Wis., under Act of August 24, 1912

Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized, July 5, 1918

z
D
f
L
L
s
r
r



at
S

S

Vol

Gift
Rev. E. C. Case
5-19-28

SIGMA XI QUARTERLY

EDITORIAL COMMITTEE

Floyd Karker Richtmyer Edwin Emery Slosson
Henry Baldwin Ward

VOL. VI

SEPTEMBER, 1918

No. 3

TO · HENRY · SHALER · WILLIAMS
STUDENT · TEACHER · ORGANIZER
FRIEND · THE · SOCIETY · OF · THE
SIGMA · XI · WHICH · HE · FOUND-
ED · AND · NURTURED · IN · ITS
EARLY · YEARS · DEDICATES · THIS
NUMBER · IN · AFFECTION · AND
ESTEEM · WITH · THE · RESOLVE
EVER · TO · FOLLOW · HIS · IDEALS
OF · SCHOLARSHIP · INTEGRITY
AND · SERVICE

Henry Shaler Williams

The Trustees of Cornell University learn with great sorrow of the death of Professor Henry Shaler Williams, Emeritus Professor of Geology in this University. ¶ It is now nearly forty years since Professor Williams became a member of the teaching staff of this institution. ¶ During the long period of his active service as a teacher, from which he retired in 1912, he endeared himself to his students by his unselfish devotion to them; and during the longer period of his association with his colleagues in the Faculty and with members of the Board of Trustees he won their affection and respect by his sterling qualities as a man and his attainments as a scholar. ¶ As a teacher he was very conscientious; he was especially strong as a teacher in his laboratory, where his close personal attention and his constructive criticism gave his students a training of incalculable value. As an investigator he attained a very high rank. His studies of Devonian paleontology; of geological history of organisms; and of the evolution and geographical and geological modification of fossil faunas stand out as important contributions to the literature of these subjects. He was honored by election to the more important American and foreign geological societies. ¶ Although his devotion to his students and his attainments as an investigator gave him eminence, yet to those of us associated with him he will be remembered especially because of his personality. His sweetness and gentleness of character and his thoughtfulness of others won him the love of all who were so happy as to know him. We mourn the loss to the world of a teacher and scholar and our loss of a friend.

RESOLUTION ADOPTED BY THE BOARD OF TRUSTEES OF
CORNELL UNIVERSITY ON THE THIRD DAY OF
AUGUST 1918.

CORNELL MEMORIAL SERVICES

On Sunday, October 20, 1918, a memorial service in honor of the late Professor Henry Shaler Williams was held in Sage Chapel at Cornell University. It was attended by several members of the family and by a large number of Professor Williams' friends from the faculty and the town. Professor Quarles of the department of music was organist and the services of a well known harpist from New York City added much to the richness of the musical program which was especially selected so as to include compositions of which Professor Williams was known to have been fond.

In addition to friends from Ithaca and vicinity Professor Herbert E. Gregory of Yale and Professor Herman L. Fairchild of the University of Rochester were present. Letters were read from Professor James Frazer Kemp, a former pupil and for many years a close associate of Professor Williams and from Secretary C. D. Walcott of the Smithsonian Institution both of whom were unable to attend.

In the unavoidable absence of President Schurman, Professor Heinrich Ries, head of the department of Geology, presided.

The committee of arrangements consisted of Professors Comstock, Ries and Burr of the University Faculty.

The program of exercises is printed in full on the following page and the addresses which were given as well as the letters read at the exercises follow thereafter. To these have been added a few items that though not part of the program of that special occasion are so closely connected by their character that it has been deemed appropriate to include them in the series of tributes to Professor Williams.

In Memory
 of
Henry Shaler Williams

Exercises at the Sage Chapel, Cornell University

Sunday, October 20, 1919

PROFESSOR HEINRICH RIES, presiding

MUSIC: *Largo* (Harp and Organ) Handel

Professor Williams at Yale: the Student and the Man

PROFESSOR HERBERT E. GREGORY, Yale University

MUSIC: *Priere* (Harp) Hasselman

Professor Williams at Cornell

Letter from PROFESSOR JAMES F. KEMP, Columbia University

Professor Williams Among Geologists

PROFESSOR HERMAN L. FAIRCHILD, University of Rochester

Professor Williams the Investigator

Letter from SECRETARY CHARLES D. WALCOTT, Smithsonian Institution

MUSIC (Organ and Harp) : a) *The Swan* Saint-Saëns
 b) *Aria* Bach-Gounod

Professor Williams and Sigma Xi

PROFESSOR EDWARD L. NICHOLS, Cornell University

Prayer and Benediction THE REV. HARRY EMERSON FOSDICK

MUSIC: *Largo*—from the *New World Symphony* Dvorák

PROFESSOR WILLIAMS AT YALE

Cornell and Yale are singularly linked in the life of Henry Shaler Williams. Professor Williams was born at Ithaca, graduated from Yale, then returned to Ithaca to teach at Cornell. In 1892 he is again at Yale, returning in 1904 to Cornell where his life work was finished. Six years of his young manhood were spent at Yale in undergraduate and graduate studies and eight years as professor of geology. Just twice that time was devoted to active service at Cornell. Yale thus shares with Cornell the prestige which comes from a great scientific name and it is fitting that the two universities should join in commemoration of the life and services of Professor Williams.

The Yale records reveal little of Williams as an undergraduate except that his class work was well done, but it is easy to picture the boy taking walks along the shore of Long Island Sound collecting materials, bringing them home for study, and building the foundations for penetrating observation which later yielded such large returns to science. For Williams the graduate student, the eager boy already devoted to the search for the hidden meaning of natural phenomena, the distinction between teacher and student broke down. Williams was a member of a small company of sympathetic, earnest men—faculty and students—who together carried on their investigations. The quality of his work as a graduate student is indicated by his thesis for the doctorate, which is not the elaboration of a task assigned by an instructor, but an exhaustive study and a significant contribution to science.

In 1892 Yale was confronted with a difficult problem. It became necessary to select a successor to James D. Dana, America's foremost geologist, and to fill the chair which for nearly a century had been made famous by Silliman and Dana. There were many able geologists in the country, but Professor Dana insisted on a man who combined pre-eminent attainments with personal character and faith, for the task in hand was not merely to present the facts and principles and methods of geology to successive groups of students, but to stand as an interpreter of the truths of nature. The doctrine of evolution in many quarters appeared to be in conflict with Christian faith. Great truths were to be reconciled and a great man was de-

manded for the task. Dana chose Professor Williams. And so it came about that after twenty years of distinguished service at Cornell, Williams came to Yale as Silliman Professor of Geology. He came at the time when the great *Manual of Geology* was taking final form, and took part in the statement of the theory and facts of evolution which brought the teaching of the *Manual* in harmony with the leading scientific thought of the day.

In the early nineties at Yale little room was found in the curriculum for geology. The subject was offered only to Juniors and Seniors and was so restricted that relatively few men could elect it. The records show that during the first two years of Professor Williams' professorship students elected geology for no particular reason, but soon the class was found to consist of men who were seriously interested in problems of nature and their bearings on life. Williams was not a "popular" teacher, and he never received the doubtful honor of "favorite" professor as voted by the Senior Class. He knew no tricks of the lecture platform and cared little for applause. He found it difficult to formulate dramatic situations and impossible to be dogmatic; his statements were accompanied by qualifications and exceptions. Williams loved the truth as few men love it; he was not content with half truths. The effects of this style of teaching was easily seen in the reaction of the class. At first the teaching seemed confusing; few clear cut sentences could be written in a note book and cramming for tests on the basis of catch phrases was a very difficult task. Before the end of the course, however, the class realized that under the name of geology they were learning the greatest lesson open to men—the method of weighing evidence and thus arriving at truth. Many students of Williams have duplicated my experience. I came in from classes in philosophy and classics and was surprised at the method and content of the course. I asked myself the question: Is this geology? I had thought that geology was the study of rocks and fossils and valuable minerals, but found it a method of clear thinking—a road to the fundamentals of intellectual and spiritual life. As presented by Professor Williams geology was not a guide to making money or to the collection and labelling of natural objects. It was a method of adjusting one's thinking to great truths. The many students who came under Williams' influence learned to view the world in a new light. Space and time and matter and living organisms took on new meaning,

and somehow assumed a spiritual aspect, so that knowledge was not mere acquisition of facts and methods, but a something which ennobled its possessor. Someway also the search for truth untarnished by mercenary or selfish motives tended to dissolve doubts and to land one on a solid foundation. Teaching which produces such results is a man's work.

Williams exerted a large influence through an advanced course in the Philosophy of Life and Organisms—a course sometimes enrolling a dozen, sometimes one hundred or two hundred, as arrangement of the curriculum allowed choice on the part of students. The teachings of this course became campus discussion, and entered into the thinking of graduates, undergraduates, and faculty. Its value was so obvious that after Williams returned to Cornell the course was again organized and is now one of the prominent features of the Yale curriculum.

At Yale we remember Professor Williams as a man wholly unselfish, who would not magnify his importance, who would not fight for what might be considered his rights. He was ready to use poorly equipped laboratories and class rooms, to take undesirable hours for teaching in order to advance the work of others. He freely shared his great fund of knowledge and experience and seemed more interested in the success of others than in his own success. Unselfishness and devotion to truth are the traits we remember in this great man. They characterized his personal relations, his teaching and his writing. More than any man of my acquaintance he exemplified the text: "Ye shall know the truth and the truth shall make ye free."

Williams' work lives in his writings and perhaps even more in his students, but his death is no small loss. Unselfish teachers of truth are rare in any generation.

HERBERT E. GREGORY

WILLIAMS AS A FRIEND

The death of Professor Henry Shaler Williams brings back to me very vividly, the five years, 1886-1891, of association in the lecture rooms and laboratories at Cornell, and the many years of intimate friendship since. In 1886 Sigma Xi was just becoming organized under his oversight; and graduate work was being continued and further developed with some promising students who have since richly fulfilled early anticipations. Coming to an instructorship as a young man, fresh from European training, I found Professor Williams a kindly and sympathetic chief and a friend with whom association inevitably strengthened scientific ambitions and ideals. He possessed an exceptionally fine and idealistic mind and was inspired and supported in his work by a thorough-going and genuine search for the truth. Patient and accurate in scholarship and realizing the long effort required to reach enduring and well-fortified results, his influence operated to establish the same habits of mind in his associates, whether junior officers or students. Of a sensitive, poetic and supremely religious nature, he was governed in his dealings with others by an almost super-active conscience; and so far as his honest convictions led him, he was influenced by it and nothing else. He was consequently considerate and sympathetic with his colleagues and in all matters of administration and development which appealed to his judgment, he gave them whole-hearted support. He was, however, cautious and conservative in general attitude and if plans did not appeal to his judgment or his sense of right and proper expenditure, he could not bring himself to conscientiously approve of them. He was inclined to grieve over misunderstandings and to bear with infinite pain to himself things that a more militant and aggressive nature would have settled and dismissed.

And yet by just so much as he might have been militant and aggressive, he would have sacrificed the philosophical and speculative habit of mind, which led to his most valuable results in the study of the evolution of life on the earth; and by just so much would we, his friends, have missed his great and unique charm. We have to take men as they are and appreciate the rare qualities, which the sensitive, retiring disposition possesses and offers. When it suffers unduly from harsh experiences, encountered in life, we may wish

that for its own sake, they could be less grievously taken, yet sane and correct understanding will show, that even slight changes would mar an unique, singularly attractive and well-rounded character. Professor Williams held his friends with unbreakable bonds of affection. They trusted him without question and he never caused a regret that the confidence had been given him.

JAMES F. KEMP

PROFESSOR WILLIAMS AMONG GEOLOGISTS

Professor Williams was one of the small group of geologists who were present at the organization meeting of the Geological Society of America, which has become the largest organization of geologists in the world. It is meant in compliment, that Professor Williams appears to have frequently been present at the birth of scientific societies; for example, the Society of Sigma Xi, the Geological Society of America and the Paleontological Society.

The Geological Society was organized at a meeting called at Cornell University. The meeting was held in Sage College, in the Botanical Hall, on December 27, 1888. It appears probable that this initial gathering of the Society, with representatives from distant places, was held at Ithaca on the suggestion and invitation of Professor Williams. He certainly had immediate charge of the arrangements; and was thanked by name along with the Trustees of the University; and in the evening he and Mrs. Williams received the Fellows of the new society at their residence.

Of the 13 geologists present at the Ithaca meeting three bore the name Williams. These were Henry Shaler Williams, Samuel G. Williams and J. Francis Williams from the Pratt Institute, Brooklyn, and three of the 13 were members of the Geological Department of Cornell: H. S. Williams, S. G. Williams and J. F. Kemp.

The other geologists present were: James Hall, from Albany, who was elected President; Charles H. Hitchcock, from Dartmouth College; Henry B. Nason, from Rensselaer Polytechnic Institute; W J McGee, representing the U. S. Geological Survey, Washington; J. J. Stevenson, from New York University; I. C. White, from the University of West Virginia; Alexander Winchell, from the University of Michigan; Newton H. Winchell, from the University of Minnesota; and H. L. Fairchild, from the University of Rochester. Of this representative group only five are now living: Hitchcock, Kemp, Stevenson, White and the speaker.

At this first meeting Professor Williams was elected Treasurer, and was made one of the committee charged with revision of the tentative Constitution. He held the office of Treasurer until 1891, when he was succeeded by Dr. I. C. White. From 1892 to 1894 he was one of the Councillors of the Society. In 1903 he was the

Second Vice-president; and in 1904 he was the First Vice-president. During all the years down to 1916 Professor Williams was active in the work of the Society. He presented and published many papers; and was recognized as one of the older, more eminent, honored and respected Fellows.

The relation of Professor Williams to the geologic world is also well shown by the number and the character of his published writings. The U. S. Geological Survey list of published writings in geology and paleontology from the beginning of time down to 1916 credits him with 87 titles. It is an illustration of his modesty and deliberation that he did not rush into print hastily. His first paper was not published until 1880, when he was at Cornell, and 12 years after his graduation. From 1880 to 1891 he is credited with 27 titles; and with 28 from then to 1900. The first paper was on the "Genesee slate," in Science, volume one. His last paper in the Survey list, for 1916, was on the Silurian of Maine.

Professor Williams did not make the mistake so often made, especially by young men, of writing on a variety of subjects outside of his own special line of study. His writings are quite strictly limited to biologic geology; paleontology and stratigraphy. The exceptions may be noted: in 1887 he published in the American Naturalist a paper on "Methods of instruction in general geology." During the years when he was editing the American Journal of Science, 1897-1899, his reviews of other men's publications include several (6 are noted) which relate to general geology, or to matters outside his specialty. He also wrote two biographical memoirs, one on Professor Ralph S. Tarr, and one on Professor James D. Dana. The latter writing is judged to be his finest piece of writing along geologic lines. He did it *con amore*, and it shows a grasp of the broad subjects in which Dana toiled as a pioneer, and as the most eminent geologist of his day.

HERMAN L. FAIRCHILD

WILLIAMS, THE INVESTIGATOR

Henry Shaler Williams, or "Lord Harry" as I had familiarly called him for many years, was one of the finest types of the American man of science, the product of the best American ancestry, of an exceptional home environment and of an association with a great University from boyhood to the close of his career. He was upright, cleancut, generous in dealing with his associates and scientific colleagues, and when once a friend continued true under any and all vicissitudes.

If I were asked to name his weakest point, it would be his over generous and forgiving disposition toward those who took advantage of that kindly nature, thereby causing him undue mental suffering and sometimes material loss.

In his geological and paleontological investigations, Williams not only did thorough work in the field and in the laboratory, but in his interpretation and illustration of what he discovered and developed he applied philosophic principles which have given his papers exceptional value.

In the passing of Williams, science has lost an advocate of the highest ideals of research work, a close student of physical and biological problems in geology, and one who for years was a quiet and effective leader, by his influence giving direction to philosophic geological thought and to the organization of American geologists into a compact, harmonious and effective body.

To me he was a dear personal friend and honored colleague. I shall miss him as one of the best representatives of a generation of American geologists rapidly passing beyond active scientific research.

CHARLES D. WALCOTT

HENRY SHALER WILLIAMS AND SIGMA XI

The fine scientific spirit of Henry Shaler Williams shows itself nowhere more potently than in his connection with the Society of the Sigma Xi. Here he was truly a pioneer and a missionary and a prophet. Here his sense of the nobility and majesty of science, of its deeper philosophical significance and of its proper place in the higher education became manifest.

What the society would have become but for his influence, we know not; but that it would have been very different from the Sigma Xi of today is certain. The little group at Cornell who in 1885-86 were planning for its establishment were engineers. They had in mind an honorary society for engineering students. He persuaded them to build upon a broader foundation; to include pure science without excluding its applications. Thus there came into existence, largely through his labors which extended over many years, a Phi Beta Kappa for science but with new ideals and broader functions. In his conception Sigma Xi was to stand for three important things, not even yet fully realized after more than thirty years, but in process of realization. (1) The recognition of scholarship in science even as scholarship had long been recognized in the humanities. (2) The establishment of a new criterion of fitness; more subtle and significant than the old standard of marks or class standings, i. e., the promise of achievement in research. (3) The linking together of the great family of sciences through an organization of the workers in all departments of research, so that the sundering and estrangement due to modern specialization might be ameliorated and sympathy and cooperation fostered.

What Henry Shaler Williams stood for a quarter of a century ago is now being realized. The doctrines which he preached to a little group then in his quiet but pervasive way is now being brought home, year by year, to many hundreds of new recruits in the army of science. Everywhere throughout the land students showing promise of productivity are being picked out and brought together. That research is a growing cult, counting its devotees by the tens of thousands is clear, from the extraordinary growth of our scientific literature and from the new spirit that is beginning to pervade our universities and to supplant the older and less vital scholasticism.

The concepts which underlay this movement, in the development of which Professor Williams had so important an influence, are basic and far reaching. They reveal in him a vision not confined to the particular field in which his own researches lay. They show us a specialist whose interests were broader than science itself; a student of fossils who was a philosopher as well; a dreamer whose dream is coming true.

EDWARD L. NICHOLS

BENEDICTION

Eternal God, our Father, who hath given us minds that therewith we might seek truth, grant the benediction of Thy light on this university and all kindred institutions, where scholars follow sound learning with a whole heart. Let not the flame of pure scholarship die out among us. Grant unto our generation, living in troubled times, grace still to hold knowledge in honor and to seek wisdom above all riches. Let not the clamor of material pursuits make us forget that quality in which our glory rests and we are likeliest unto Thee: that we have hearts to love the truth and hate a lie.

Especially we offer Thee hearty gratitude for Thy servant whose memory today we cherish. For his generous and self-forgetful spirit, his painstaking and accurate scholarship, his secure and radiant Christian faith and life, we thank Thee. Raise up continually a succession of such lovers of the light that the haze of ignorance may be burned away and mankind enter into its heritage of growing truth. Let Thy Kingdom come which Thy prophets have proclaimed and for which Thy martyrs spent their lives, where the saints of science in fellowship with the saints of faith shall put instruments of power into the hands of high ideals, to the endless blessing of mankind.

Now unto him that is able to guard you from stumbling and to set you before the presence of his glory without blemish in exceeding joy, to the only God, our Saviour, through Jesus Christ our Lord, be glory, majesty, dominion and power before all time, and now and forever more.

Amen

[Benedictional prayer of the Rev. Dr. Harry Emerson Fosdick, of the Union Theological Seminary, New York City, at the exercises in memory of Professor Henry Shaler Williams, in the Sage Chapel, Cornell University, Sunday, October 20, 1918.]

A TRIBUTE

Henry Shaler Williams was a gentleman of ripe culture and rare charm. He was a careful and sympathetic intellectual guide to thousands of young men at two of America's principal university seats, as well as to countless others who had been brought into personal relations with him. As a man of science his confrères on both sides of the Atlantic, and on both sides of the Pacific as well, will testify of his worth and high attainments, but to all who knew him most intimately the memory of him as a great Christian will be the memory which will be cherished with most gratitude and inspiration.

His life showed the entire compatibility of a deeply religious soul finding and serving God without compromise or confusion of intellect. By his conversation, methods, attitude and spirit he was a splendid illustration of the fact that what characterizes the true man of science is likewise that which Christ emphasized as essential to the understanding of Himself. His teachings and plans, to growth in spiritual knowledge and character and to the spread of His truth and influence. In his teaching he constantly emphasized that the free exercise of the scientific method and temper in matters pertaining to religion best ensure the development of Christian faith and character.

It will serve to recall his manner of life and his spirit to note afresh the qualities illustrated in common by Christ and modern science. They both seek to take account of all the facts. Both are thoroughgoing in their processes. The genuine Christian and the true man of science are likewise open-minded and desire to get at the truth and are ever obedient to the truth. It may be said, moreover, that both are characterized by genuine humility. How true it is, also, that both are willing to pay great prices to ascertain and to follow the truth whithersoever it leads. On every field of conflict it is shown impressively that the follower of Christ and the follower of modern science are courageous. Both likewise exercise faith or employ the right use of the imagination.

Thus we will ever recall our friend chiefly as one who was an interpreter and mediator between those who failed to recognize the essential unity of the Christian principles and temper and the principles and spirit of true science. Yes, more, he constituted not only in his advocacy but in all his processes and in his very self the most appealing and satisfying demonstration of this identity.

JOHN R. MOTT

HENRY SHALER WILLIAMS AND THE SOCIETY OF SIGMA XI

In the passing away of Henry Shaler Williams the Society of the Sigma Xi has lost not only the man to whom more than to any other the Society owed its very existence but also the man to whom above all others it owes the sources of its present strength and promise for the future. For our strength for growth and power for good root in the ideals of the spirit of zealous research in science and of scientific achievement, which were so prominently emphasized by Professor Williams at the birth of the Society. Moved in part by the desire to open to graduating science and engineering students a college honor equivalent to that of election to the older literary honor society of Phi Beta Kappa, the founders of the Society might easily have placed the emphasis on the honoring of college achievement in science and engineering, on scholastic ability and scholastic promise. Fortunately in Dr. Williams the Society had in its very inception a man of wider and loftier vision, a man who through intimate personal knowledge of the processes of evolution in this world knew that not the acquirement of the knowledge of yesterday but the building up of the knowledge of today and of tomorrow by scores of indefatigable workers in zealous search for the truth is the true goal worthy of the life devotion of men of science! His was the emphasis on the supreme value of investigation, that the truth of today and of tomorrow may be wiser than that of yesterday, aye, that the right of tomorrow may be more just, more generous than the right of yesterday and of today, which come to us out of the dusty tomes of accumulated knowledge, and accumulated error and wrong, of the past!

As the Society has adhered to Dr. Williams' high standards emphasizing the search for new truth, it has been strong and formed a part of that great movement in the fostering of research which in the past thirty years has transformed our universities, has founded our great research institutions, has developed as never before the research bureaus of our government and prepared our country for the tremendous scientific effort which is bearing the shield of democracy successfully in the final struggle of freedom against medieval privilege. And where the Society has wavered in its adherence to the

original teachings of its great founder and has let the consideration of the unfruitful matter of class standing and college honors outweigh in form and influence the considerations of real research ability and research achievement, there it has been weak: weak in the eyes of the great leaders of research, weak in the stimulation of real productiveness, weak in attaining actual leadership in the great realm of scientific endeavor. Fortunately, Dr. Williams lived to see the Society, to which he had given so much valued thought, return in no undecided fashion to his own early teachings and put in recent years the emphasis once more insistently on companionship in zealous research, on research achievement, rather than on the uncertain promise of scholastic ability!

The debt of gratitude which we owe this founder of the Sigma Xi Society is therefore a living debt—not only for our beginning but much more so for that unequivocal appeal to the spirit of research, which must remain the very heart of our creed if the Society is to survive and take its rightful place among the leaders who are making in our country for the common goal—the improvement of the lot of man through painstaking, honest, critical evolution of the truth by countless lovers of science.

JULIUS STIEGLITZ

President of the Society of Sigma Xi

PROFESSOR WILLIAMS IN SIGMA XI HISTORY

No one can examine even superficially the history of Sigma Xi without being profoundly impressed by the part which Professor Henry Shaler Williams played as a leader in its organization. More than that the records of this time show in marked degree his breadth of mind and generosity in yielding to others when it appeared that stronger or broader plans for the achievement of the end in view were presented to him.

In the historical sketch which is found at the beginning of the *Sigma Xi Quarter Century Record and History*, a brief statement is given of the beginnings of Sigma Xi from which the following may be quoted: "To graduate students in Geology, Professor Williams often spoke, as early as 1883 at least, of the need of an honorary society for scientific students similar to Phi Beta Kappa. * * * As a result he organized in the spring of 1886 a society of geological students to which were elected fourteen members, including some who are now among the most distinguished of present day geologists in this country."

One of the men elected to this society, Professor Charles S. Prosser, wrote of it* in these terms: "This organization was called the Society of Cornell University Geologists, and during commencement week of June, 1886, those that had been selected for membership, who were in Ithaca, were asked to meet in the Geological Laboratory, where a short speech was made by Professor Williams. After this speech each member was presented with a small geological hammer on one side of which his initials and date of graduation had been stamped and on the other side S. C. U. G. (the initials of the Society). This was accompanied by a letter stating that:

'In recognition of the excellence of your scientific scholarship attained while under instruction in Cornell University, I take pleasure in presenting you with the badge of membership of the Society of Cornell University Geologists—(a geological hammer appropriately stamped with S. C. U. G. and date of graduation).

May it ever be used in truthfully interpreting the laws of nature, to the honor of your Alma Mater and the good of mankind.

HENRY S. WILLIAMS

June 17, 1886

Teacher in Cornell University'"

* SIGMA XI QUARTERLY, Sept. 1913, v. 1, p. 61.

As the movement developed it became clear that its scope did not satisfy the ideals of Professor Williams who drew up a plan for a Society of Modern Scientists which was to "encourage any attainment by recognizing with some mark of honor those who exhibit special ability in investigating, understanding and interpreting the facts of nature in the various branches of modern science."

Meanwhile, however, the formation of an honorary scientific society had been taken up by members of the Cornell engineering faculty and students. They had selected the name Sigma Xi, published a constitution and completed the formal organization. When the movement came to the knowledge of Professor Williams, he greeted it with enthusiasm, suggesting that it be broadened to include all the scientific work of the University. In the original record book of the Sigma Xi Society the minutes of the second meeting contain the statement that these proposals were accepted, and at the fourth meeting Professor Williams was made a member of the new organization.

Evidently he became at once the leader of the movement, for on May 20, 1887, he was elected first president by the Cornell Chapter and in his inaugural address, entitled, *The Ideal Modern Scholarship*, delivered at Ithaca on June 15, 1887, and subsequently printed in pamphlet form, he voiced a challenge to the University World in terms so strong in its appeal and so unanswerable in its logic that it must always rank as the *Magna Charta* of Sigma Xi.

A fine record of these early times has been published in the *QUARTERLY* by Professor Charles S. Prosser,* one of the first initiates of Sigma Xi. Dr. Prosser himself was a graduate student and later instructor under Professor Williams as well as an intimate associate and personal friend, and of his work in directing the policy of the organization he writes as follows:

"The importance of Professor Williams' counsel and influence in the organization of Sigma Xi was unquestionably very great, as is indicated in the preceding part of this article. It is sometimes said that Sigma Xi was founded by a group of engineers who did not attach any great weight to the ability to carry on original research. This perhaps might have been true if Professor Williams had not become an active member of the group of founders, at so early a date and impressed upon them the importance of founding a national

* SIGMA XI QUARTERLY, Dec. 1916, v. IV, p. 103.

honorary scientific society with broad ideals, in which the ability to conduct independent research, or the promise of such ability in undergraduates, should be regarded as the first and most important qualification for membership."

How deep an impression these utterances made upon the minds of those early students is well evidenced by Prosser's biographer who says:* "The story of the organization of this society was one that Professor Prosser loved to tell. During commencement week of 1886 those selected for membership were asked to meet in the geological laboratory. Professor Williams then made a short speech after which he presented to each man a small geological hammer stamped with the letters S. C. U. G. (Society of Cornell University Geologists). The hammer that Professor Prosser received on this occasion he always prized very highly. To many of us who were his students in later years that small square-headed hammer, stamped on one side C. S. P. 1884 was infinitely more than a geological hammer. It formed the basis of many a talk concerning the early days of the Sigma Xi and the ideals of the organizers and early members. It became a symbol of industry, patience, and thoroughness in the search for new facts, of open-mindedness and mental honesty in the acceptance of the facts when learned, and of accuracy and care in their interpretation."

When Professor Williams went to Yale his name naturally dropped out of the Cornell records, to reappear in Sigma Xi history when the Yale Chapter was founded in March, 1895. At this date the president appointed him as the Yale representative of the Committee on Extension which had been created by the previous convention. He at once became the spokesman of the committee, giving expression to its views regarding the policy of the Society in founding new chapters and his remarks together with the resolutions submitted and adopted by the next Convention, were printed and distributed in connection with the movement for the extension of the influence of the organization inaugurated in 1895. Both these remarks and the resolutions adopted at that time have been regularly printed as Appendix I in every constitution issued by Sigma Xi since then. They have come to be regarded as substantially a part of the law governing the Society.

* SIGMA XI QUARTERLY, Dec. 1916, v. IV, p. 103.

At the close of the Springfield Convention, August 29, 1895, when the resolutions referred to were adopted, Professor Williams was elected President of the Society, and served until 1901. In his first inaugural address delivered at the Third Convention held at the University of Toronto, August 20, 1897, he voiced again clearly and forcefully the ideals of Sigma Xi. From his remarks which have been regularly printed as Appendix II in the Constitution, the following brief extracts may be cited: "The Society, if rightly guided, may take a place of leadership in the movement now going on to place science on an equality, so far as it deserves it, with literature as an element in the highest liberal education. * * * The time has come for making a permanent place for science among those latter factors of the modern liberal education. * * * In order to win a permanent place for science in that ideal education, it must be demonstrated that the study of science contributes a factor to this ideal which is not and cannot be furnished by the literary branches. This quality we believe to be found in the ability and promise of original research."

In view of the general recognition given to such thoughts at present, it is worth while noting that in those days they were so strange as to be almost revolutionary in character. The record of their winning a place in the thoughts and plans of American educators and educational institutions is contemporaneous with the growth and extension of Sigma Xi.

At the fifth Biennial Convention held in Denver, Colorado, on August 28, 1901, there was recorded in his enforced absence a vote of thanks to the retiring President, Professor Henry Shaler Williams "in recognition of fifteen years of wise counsel and guidance since the Society's birth, and six years of devoted and exemplary administration of the presidential office."

HENRY B. WARD
Secretary of Sigma Xi

NOTES

Many tributes to Professor Williams and his scientific work have appeared in this country since the preparation of this memorial number was begun. It would be impossible to cite them in full here. One or two important items seem to deserve special consideration:

Henry Shaler Williams. An Appreciation of His Work in Stratigraphy. By Charles Schuchert. From the American Journal of Science, vol. XLVI, November, 1918.

Professor H. F. Cleland of Williams College has prepared a complete bibliography of Professor Williams' publications.

Henry Shaler Williams. 1847-1918. By Stuart Weller. Journal of Geology, vol. XXVI, no. 8, p. 698-700.

e
i-
e
r-
of
a
al

CHAPTER OFFICERS LIST FURNISHED BY THE CORRESPONDING SECRETARIES OF THE CHAPTERS

CHAPTER	PRESIDENT	VICE-PRESIDENT	REC. SECRETARY	COR. SECRETARY	TREASURER
Cornell.....	N. H. Ogden.....	W. A. Riley.....	C. H. Berry.....	J. McMahon.....	O. A. Johannsen..
Rensselaer.....	A. T. Lincoln.....	E. W. Coleman....	E. M. Clark.....	*	E. F. Chittman....
Union.....	Ernest J. Berg....	Morland King....	Mortimer F. Sayre.	*	Mortimer F. Sayre
Kansas.....	B. M. Allen.....	F. E. Kester.....	C. M. Sterling....	E. B. Stauffer....	F. W. Bruckmuller
Yale.....	W. R. Longley....	C. H. Mathewson..	C. O. Dunbar.....	R. H. Suttie.....	G. A. Baisell.....
Minnesota.....	J. R. Allen.....	L. G. Rowntree....	R. N. Chapman....	*	C. J. V. Pettibone.
Nebraska.....	R. W. Upson.....	W. C. Brenke....	Margaret Hannah..	*	N. A. Bengston...
Ohio.....	Alan Estis Flowers	Clyde T. Morris..	F. E. Bear.....	*	C. L. Metcalf.....
Pennsylvania....	J. W. Harshberger	H. C. Richards....	Wm. H. F. Addison.	*	I. Percy Moore....
Brown.....	A. DeF. Palmer....	A. E. Watson.....	J. A. Hall.....	P. H. Mitchel....	C. H. Currier.....
Iowa.....	A. C. Trowbridge..	Richard P. Baker..	Dayton Stoner....	*	Homer L. Dodge..
Stanford.....	J. P. Smith.....	L. Abrams.....	J. C. Clark.....	*	J. C. Clark.....
California.....	W. L. Jepson.....	G. D. Louderback.	L. C. Uren.....	Edmund O'Neill..	A. C. Alvarez.....
Columbia.....	H. E. Hawkes....	J. K. Finch.....	W. W. Stiffer.....	Wm. Campbell....	W. W. Stiffer.....
Chicago.....	James R. Angell..	Forest R. Moulton	Arno B. Luchardt..	*	Arno B. Luchardt
Michigan.....	E. C. Case.....	A. M. Barrett....	H. A. Gleason.....	*	H. H. Higbie.....
Illinois.....	Chas. Zeleny.....	R. D. Carmichael..	E. H. Williams....	*	H. J. Van Cleave..
Case.....	C. L. Eddy.....	W. R. Vessey.....	C. W. Coppersmith.	*	P. E. Sabine.....
Indiana.....	J. A. Badertscher.	Will Scott.....	Clyde A. Malott....	*	C. E. Edmondson..
Missouri.....	E. B. Branson.....	C. H. Eckles.....	Leroy S. Palmer....	*	Leonard Haesman
Colorado.....	P. G. Worcester..	I. W. Woodrow....	W. C. Huntington..	*	Junius Henderson..
Northwestern...	William C. Bauer..	L. B. Arey.....	Lewis H. Weld.....	*	Keith K. Smith....
Syracuse.....	L. H. Pennington.	Louis Mitchell....	George T. Hargitt..	*	Henry N. Jones....
Wisconsin.....	C. I. Corp.....	W. J. Mead.....	E. G. Hastings....	*	F. C. Kruskopf....
Washington State.	Milnor Roberts..	Eric T. Bell.....	Nathan Fasten....	*	G. S. Wilson.....
Worcester.....	Arthur W. Ewell..	Francis W. Roys..	Francis J. Adam....	Farrington Daniels	Morton Mazins....
Purdue.....	Joseph C. Arthur..	William K. Hatt....	Nathaniel E. Loomis.	Gilbert A. Young..	William H. Bates..
Washington Univ.	E. L. Ohle.....	Joseph Erlanger..	Charles E. Galt....	*	I. M. Greenman....
Dist. of Columbia	I. K. Phelps.....	C. L. Shear.....	M. W. Lyon, Jr....	*	D. R. Harper, 3rd.
Texas.....	D. B. Casteel.....	Mary S. Young....	W. T. Read.....	F. L. Whitney....	E. C. H. Bantel....

* Offices of Recording and Corresponding Secretary combined according to advice of Convention. Corrected up to December 1, 1918

